

DATASHEET

The New POS MV - Providing the Marine Industry with robust, reliable, and repeatable position and orientation solutions

The new POS MV V4 - a tightly-coupled system utilizing advanced Inertially-Aided Real-Time Kinematic (IARTK) technology designed to increase your operational capability and reduce downtime.

Tightly integrated inertial navigation – Continuous positioning data can be generated while surveying in areas where GPS reception is compromised by multipath effect and signal loss, such as close to offshore structures, or in ports, harbors, near-shore coastal waters and rivers. Raw GPS data from as few as one satellite can now be processed directly within the POS MV reducing position drift and RTK re-acquisition time.

The V4 Advantage

The Major Benefits

- Faster, more robust heading aiding from GPS Azimuth Measurement Subsystem (GAMS) when compared to V3
- Proprietary Inertially Aided RTK providing almost instantaneous reacquisition of RTK following a GPS outage
- Superior low elevation tracking performance using lighter, smaller Trimble Zephyr™ geodetic antenna technology
- Faster initial system calibration
- Maintains heading accuracy longer when in a high multipath environment
- Increased component reliability
- Automatic identification and error estimation for lever arm distances and angles

The Latest Technology

V4 uses the latest Trimble BD950 receivers with the following attributes:

- Extremely fast response time
- Latency of less than 20 milliseconds
- Very low noise L1 and L2 carrier phase measurements
- Uses the Maxwell 4 Custom Survey GPS chip for enhanced tracking capability

Straightforward Installation and Operation

- All components mounted and installed using a straightforward, one-time-only, systematic procedure.

Faster, More Reliable Networking Potential

- An improved Ethernet raw data logging capability for streamlined data acquisition of all motion variables with microsecond-accurate time stamping

Upgradeability*

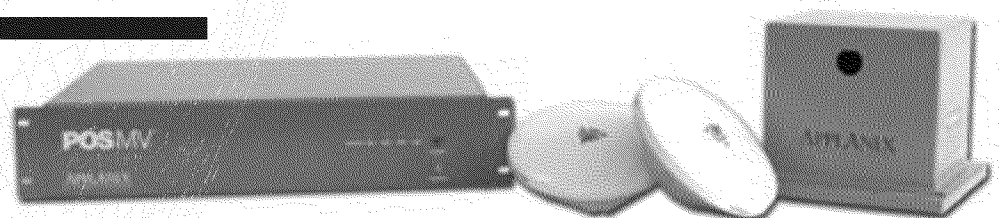
- Convenient upgrade program for PCS and antennas, to allow for maximum interoperability when moving from L1 only to a full L1/L2 RTK unit

The Most Accurate Position and Orientation Solution

POS MV V4 maintains positioning accuracy under the most demanding conditions regardless of vessel dynamics. With its high data update rate, the system delivers a full six degree-of-freedom position and orientation solution to provide the following:

- Position (latitude, longitude and elevation)
- Velocity (north, east and vertical)
- Attitude (roll, pitch and true heading)
- Heave (real-time, delayed)
- Acceleration Vectors
- Angular Rate Vectors

** For detailed upgrade information please call your Applanix Marine office*



SYSTEM COMPONENTS

POS Computer System (PCS) – A rugged, compact computer system contains the core POS processor and IMU interface electronics, plus two GPS receivers and an optional removable PC-card disk drive. The PCS provides system timing, position and velocity aiding, together with GPS raw observables for use with GAMS.

POS Inertial Measurement Unit – The system's primary sensor allows for the continuous output of position and orientation data.

Primary GPS Receiver Antenna – A dual frequency antenna for use with GAMS.

Secondary GPS Receiver Antenna – A dual frequency antenna for use with GAMS.

APPLANIX
A TRIMBLE COMPANY

SPECIFICATIONS

Accuracy

POS MV 320 Main Specifications (with Differential Corrections)

Roll, Pitch accuracy:	0.02° (1 sigma with GPS or DGPS) 0.01° (1 sigma with RTK)
Heave Accuracy:	5 cm or 5% (whichever is greater) for periods of 20 seconds or less
Heading Accuracy:	0.02° (1 sigma) with 2 m antenna baseline, 0.01 (1 sigma) with 4 m baseline
Position Accuracy:	0.5 - 2 m (1 sigma) depending on quality of differential corrections 0.02 - 0.10 m (RTK) with input from auxiliary RTK or optional internal RTK receiver
Velocity Accuracy:	0.03 m/s horizontal

POS MV 320 during GPS Outages

Roll, Pitch accuracy:	0.02° (1 sigma)
Heave accuracy:	5 cm or 5% (whichever is greater) for wave periods of 18s or less
Heading accuracy:	Drift less than 1° per hour (negligible for outages < 60s)
Position accuracy degradation:	2.5 m (1 sigma) for 30 s outages <6 m (1 sigma) for 60 s outages

POS MV 220 Main Specifications (with Differential Corrections)

Roll, Pitch accuracy:	0.05° (1 sigma with GPS or DGPS) <0.05° (1 sigma with RTK)
Heave Accuracy:	5 cm or 5% (whichever is greater) for periods of 20 seconds or less
Heading Accuracy:	0.1° (1 sigma) with 2 m antenna baseline, 0.05° (1 sigma) with 4 m baseline
Position Accuracy:	0.5 - 4 m (1 sigma) depending on quality of differential corrections 0.02 - 0.10 m (RTK) with input from auxiliary RTK or optional internal RTK receiver
Velocity Accuracy:	0.05 m/s horizontal DPGS, .03 m/s horizontal RTK

POS MV 220 during GPS Outages

Roll, Pitch accuracy:	0.05° (1 sigma)
Heave accuracy:	5 cm or 5% (whichever is greater) for wave periods of 18s or less
Heading accuracy:	Drift less than 3° per hour (negligible for outages < 60s)
Position accuracy degradation:	2.5 m (1 sigma) for 30 s outages <6 m (1 sigma) for 60 s outages

Physical Characteristics

Size

IMU:	204 mm X 204 mm X 168 mm	7.95 in X 7.95 in X 6.55 in
PCS:	432 mm X 89 mm X 356 mm	17.00 in X 3.50 in X 14.05 in
	2.0U 19 in rack mount	
GPS Antenna (x2):	187 mm X 53 mm	7.4 in X 2.1 in

Weight

IMU:	3.5 kg	7.7 lb (international)
Processor:	5 kg	11.0 lb (international)
GPS Antenna:	<0.5 kg	<1.1 lb (international)

Power

Processor:	110/230 Vac, 50/60 Hz, auto-switching 80 Watt
IMU:	Power provided by PCS
GPS Antennas:	Power provided by PCS

Environmental

Temperature Range (Operating)

IMU:	-40 °C to +60 °C	-40 °F to +140 °F
Processor:	0 °C to +55 °C	+32 °F to +131 °F
GPS Antenna:	-40 °C to +70 °C	-40 °F to +158 °F

Temperature Range (storage)

IMU:	-40 °C to +60 °C	-40 °F to +140 °F
Processor:	-25 °C to +85 °C	-13 °F to +185 °F
GPS Antenna:	-50 °C to +70 °C	-58 °F to +158 °F

Humidity

IMU:	10 - 80% RH, Ingress Protection of 65
Processor:	10 - 80% RH, non-condensing
GPS Antenna:	0 - 100% RH

Shock & Vibration (IMU)

Operating:	90 g, 6 ms terminal saw tooth
Non-Operating:	220 g, 5 ms half-sine

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